Forecasting short term load demand using multilayer feed-forward (MLFF) neural network model

Abstract

The purpose of this study was to apply the proposed model selection strategies in order to develop the best multilayer feed-forward neural network (MLFF) model for forecasting load demand. A one year half hourly load demand of Malaysia was used with the mean absolute percentage error (MAPE) as a forecasting accuracy. The fourth model selection strategy which considers both backward procedures in the selection of hidden and input nodes was applied. These fourth model selection strategies gave the best multilayer feed-forward neural network (MLFF) model which was composed of three input nodes, three hidden nodes and one output node. The in-sample MAPE was 1.1402% and the out-sample forecasts of all selected lead time horizons were greater than 1%. Comparing the forecasting performances of current study and previous study [9] the performances were same. Therefore, to develop the best MLFF model in forecasting time series data with two seasonal cycles, especially in Malaysia load data, any one of four model selection strategies can be considered.